

## ROMANCE OF THE STEAM ENGINE.

## ARTICLE XXII.

STEVENS—TREVITHICK—STEPHENSON.

When we reflect that the railway system is of such recent growth; that since 1830, 10,000 miles have been built in England, 34,000 in America, and 15,000 in other countries, we may well regard such achievements as surpassing those put forth by all the writers of romance. Whatever credit may be justly due to various inventors of the steam engine, we believe that to George Stephenson we are more indebted than to any other man for the development and great progress of railways. In our last article we gave a sketch of his life; we will now give some account of the difficulties which he had to surmount to insure success.

It was the successful working of the Liverpool and Manchester Railway that really laid the foundation of the railway system. This road met with the most formidable opposition when a bill was brought into Parliament to obtain a charter for its construction. On its third reading in the House of Commons, Sir Edward Stanley moved to defer its reading for six months, in order to defeat the bill, as a part of the line ran through his estate. In the course of his speech in favor of the motion, Sir Edward Stanley asserted that the trains could only be worked by horses, and it would take ten hours to make a journey of thirty miles. Sir Isaac Coffin seconded the motion and denounced the railroad as a most flagrant imposition. He would not consent to see widows' premises invaded by it; "and how," he asked, in quite a senatorial manner, "would any person like to have a railroad under his parlor window? What was to be done with all those who had advanced money to make or repair turnpike roads, and what is to become of those who may wish to travel in their own carriages after the fashion of their forefathers? What was to become of coachmen and harness makers, horse breeders and dealers, if railroads were to be allowed? Was the House of Commons aware of the smoke and noise, and the hiss and the whirl which locomotive engines might make passing at the rate of ten or twelve miles per hour? Neither the cattle plowing in the fields, nor grazing in the meadows, could behold them without dismay. Railroads would raise the price of iron one hundred per cent, or probably would exhaust the iron altogether. This railroad would be the greatest nuisance, the most complete disturbance of quiet and comfort in all parts of the kingdom that the ingenuity of man could invent."

It is really amusing as well as instructive to revive a recollection of the enlightened wisdom which belonged to such members of Parliament as old Sir Isaac Coffin. The bill, however, passed the House by a two-thirds vote, and it was carried almost unanimously in the House of Lords; in fact its only opponents in this, the great aristocratic branch of the Parliament, were the old Earl of Derby and his relative, the Earl of Wilton. This speaks volumes for the superior intelligence of the British Peers.

When George Stephenson was examined by a committee of the House of Commons, as to the practicability of constructing and working this railroad, several members thought he was crazy. When asked by one at what speed an engine could draw a carriage upon a railroad, he replied "ten or twelve miles at the very lowest." This was followed by a sort of chuckling laugh on the part of the wise legislators who really believed that the great but humble genius whom they were then examining was more fit for Bedlam than building railroads.

At this time George Stephenson was the most practical railroad engineer in the world. What little had been done in constructing such roads was perfectly known to him; he was therefore chosen engineer to build the line which had to be carried through Chat Moss, a deep and extensive quagmire. To accomplish this was thought, by men of science in those days, to be an impossibility; but the genius of Stephenson was fit for the occasion. He laid and built this railroad, and made the locomotive *Rocket*, which took the prize and gave positive and permanent success to the railway system.

The public opening of the Liverpool and Manchester Railway took place on the 15th of September, 1830, and it was considered a great national event. The Duke of Wellington, Sir Robert Peel, and many other

distinguished persons were present, and the engine that carried them sped along at the rate of 17 miles an hour, to the astonishment of all the spectators, who had never seen anything run faster than stage coaches. Seven locomotives had been built for the opening—all upon the basis of the *Rocket*—with multitubular boilers and the blast in the chimney. On this occasion a melancholy accident took place; Mr. Huskisson, M.P., the great patron of the railroad and the person who had pushed the bill for its charter through Parliament, was killed by being run over by the *Rocket* engine, while standing for a few moments on the track. His body was placed upon the locomotive, which dashed off with it to Eccles, distant fifteen miles, when it went at the astonishing speed of 36 miles per hour. This velocity surprised Stephenson himself; it was a new and unlooked-for phenomenon, and probably to this we may also attribute the more rapid spread of railways. It was anticipated that the speed of the engine on this railroad would be ten miles an hour, and that its business would be heavy traffic, such as coal, cotton and timber. The managers did not intend to rely on passenger traffic, as the stages used to go at the rate of ten miles per hour on the turnpike. But the great speed of the *Rocket* opened all eyes to a new system of passenger travel, and during the first eighteen months after its opening, 700,000 passengers were carried on it without a single accident. The stage required four hours to go over the same distance; the locomotive only occupied one hour and a half. This was an important difference, and since then railways have become the only agencies of public inland passenger travel in all civilized countries. What a mighty revolution has been effected by railways!

## Freaks of the Fungi.

The fungus is a kindly friend, says the London *Athenæum*, and a fearful foe. We like him as a mushroom. We dread him as the dry rot. He may be preying on your roses, or eating through the corks of your claret. A fungus has eaten up the vine in Madeira; the potato in Ireland. A fungus may creep through your castle and leave it dust. A fungus may banquet on your fleets, and bury the payment of its feasts in lime. Fungi are most at home upon holes of old trees, logs of wood, naked walls, pestilential wastes, old damp carpets, and other such things as men cast out from their own homes. They dwell also in damp wine cellars, much to the satisfaction of the wine merchant, when they hang about the walls in black, powdery tufts, and much to his dissatisfaction when a particular species, whose exact character is unknown, first attacks the corks of his wine bottles, destroying their texture, and at length impregnates the wine with such an unpleasant taste and odor as to render it unsaleable; more still to his dissatisfaction when another equally obscure species, after preying upon the corks, sends down branched threads into the precious liquid, and at length reduces it to a mere *caput mortuum*.

## Sand Pillars.

Atkinson, in his travels in the Amoor country, says:—"I have often witnessed a phenomenon on the sandy plains of Central Asia, which accounts in some measure for the innumerable sandy mounds that are found in some regions. When seen at a distance, for the first time, it made a strong impression on my mind. About twenty pillars were in view, wheeling round and licking up the sand. As they passed along, a cloud of dust was raised on the ground, apparently eight or ten yards in diameter. This gradually assumed the form of a column that continued to increase in height and diameter as it moved over the plain, appearing like a mighty serpent rearing its head aloft, and twisting his huge body into contortions in his efforts to ascend. The others fifty, sixty and one hundred feet, and some ascended to nearly two hundred feet. As the whirlwinds began gathering up the dust, one might have fancied that antediluvian monsters were rising into life and activity. The smaller ones seemed to trip it lightly over the plain, bending their bodies in graceful curves as they passed each other; while those of large dimensions revolved with gravity, swelling out their trunks as they moved onward, till the sandy fabric suddenly dissolved, forming a great mound, and creating a cloud of dust that was swept over the desert.



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1,106.—J. E. Ambrose, of Lena, Ill., for an Improvement in Lamps:

I claim, first, The employment or use of the water chamber, C, communicating through a tapered opening with the body or fountain, A, of the lamp and arranged to operate substantially as and for the purpose set forth.

Second, The arrangement of the springs, k k, shaft, g, and wheels, h h, substantially as shown, for elevating and lowering the wick, as described.

Third, The combination with the cone, K, of the short tube, I, adapted and employed in the manner set forth, for the attachment of movable inner deflectors of various forms.

Fourth, The plate, N, provided with the slot, a, and pendents, t, operating in connection with the outer cone or deflector, K, in the manner and for the purposes set forth.

[This invention relates to a new and improved lamp for burning paraffine and the various coal oils.] The object of the invention is to obtain a lamp which will burn the materials above specified without chimney, and one which is portable or may be used as a hand lamp and carried, while burning, from place to place without smoking or emitting a disagreeable odor.]

1,107.—D. S. Anderson, of Trenton, N. J., for an Improved Apparatus for Making Roofing Cloth:

I claim the hollow callenders, D D, combined with the paper rollers, E E, the distributing rollers, B B, and regulating rollers, C C C, in connection with the receptacles, A A, provided with radiating steam pipes, g g, or their equivalents, when arranged as described with, in, and for the principal specified.

1,108.—Charles Bailey, of Batavia, Ill., for an Improved Arrangement of Threshing Cylinder, Corn Sheller and Grinding Mill:

I claim so constructing the cylinder of a threshing machine as to form one head thereof, a corn sheller, and crusher, and on the end of its shaft, a grinding mill, when the whole is arranged substantially in the manner and for the purpose set forth.

1,109.—Henry Bailey, of Columbia, Maine, for an Improved Washing Machine:

I claim the arrangement and application substantially as described of each stock or beater with respect to its swing bar, pitman, and crank, whereby the conjoint action of the said parts, the beater during its forward movement, by which the bottom of the tub is caused to receive a tilting movement, by which its toe is borne downward on such bottom, substantially in manner and for the purpose set forth.

1,109.—E. F. Barnes, of Brooklyn, N. Y., for an Improvement in Railroad Chair and Splice:

I claim the combination and arrangement of the chair, A, and splice B, in connection with the rails, C C, substantially as and for the purposes set forth.

1,111.—John A. Brock, of Chicago, Ill., for an Improved Mining Pan:

I claim a mining pan, as described, having a supplementary plate or disk fitted into the interior thereof, for the purpose of collecting and holding the mercury used in the framing operation, in a fixed position, as and for the purposes set forth.

1,112.—J. F. Brown, of Columbus, Ga., for an Improvement in Cotton Gins:

I claim the improved saw gin having its separate parts, viz, its hopper, breast, two sets of saws and brush, constructed and arranged in relation to each other, and so as to operate together, substantially as described.

1,113.—Daniel Broy, of Canton, Mo., for an Improvement in Seed Planters:

I claim the arrangement of the double perforated slide, F, inclined cap, L, tubes, I, cutting wheels, D, and lever, G, with the flat bottomed grooved wheels, B, and adjustable tongue, J, in the manner and for the purpose shown and described.

[The object of this invention is to arrange a seed planter, which will open furrows, drop the seed, and cover it over, with ease and facility, and which allows of regulating the depth, to which the furrows are opened, in a simple, sure and ready manner.]

1,114.—M. L. Callender, of New York City, for an Improvement in Lamps:

I claim the bifurcated wick tube, f, and its arms, e e', by which two wicks can be elevated or depressed simultaneously.

Second, I claim the combination of the cap, b b', the deflector, c c', and the cap, d d', with the bifurcated wick tube, f, and its arms, e e', and the bifurcated shield, a a', with its arms, y y', for supplying the interior of the flame with a current of heated air, and the outer surfaces of the flame with currents of cool air, for the purpose and in the manner specified.

1,115.—C. F. Chickering, of New York City, for an Improvement in Square Pianofortes:

I claim the combined arrangement of the wrest plank, hitch plate brace and sound-board and of the open or merely barred portion of the case, in a square pianoforte, substantially as and for the purposes described.

1,116.—J. L. Clough, of Suffield, Conn., for an Improved Floor Clamp:

I claim, first, The jaw plates, A and B, connected by one or more bars, C C' when constructed substantially as shown and used for the purpose substantially as described.

Second, The combination of the lever, D, pressure bar, E, and jaw plates, A and B, substantially as described.

1,117.—Francis Comtesse, of New York City, for an Improved Device for Protecting the Hulls of Vessels from Cannon Balls:

I claim the employment of convex rounded shields A, attached to the sides of a vessel by means of loops, a, and eye bolts, b, or by any other equivalent means, substantially as and for the purpose shown and described.

[This invention consists in the employment of a series of convex rounded shields of iron or steel plate or of any other suitable material and attached to the sides of a vessel by means of eye bolts and loops or in any other desirable manner, and so that the edges of each succeeding shield overlap those adjoining, for the purpose of protecting the vessel, and rendering it proof against any cannon ball which may hit it.]

1,118.—A. O. Crane, of Hoboken, N. J., for an Improvement in Boots and Shoes:

I claim, first, A boot or shoe heel composed of two, three or more lifts or risers, and clamped and held together by conical rivets, which